



MATH 3330-003 Linear Algebra

(Mon)/Tues/(Wed)/Thur/Fri — 2:30pm–3:50pm — PKH 319



Dwight Anderson Williams II (preferred: “Mr. Williams”)

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Faculty Profile

Mon/Wed: 1:15pm - 2:15pm

Office: PKH 406

Course Description: This 3 credit-hour course covers solving systems of linear equations, matrix operations, determinants, vector spaces, linear transformation, orthogonality, Gram-Schmidt process, projections, and eigenvalues and eigenvectors.

Prerequisite: C or better in MATH 1426 or HONR-SC 1426. MATH 2425 is strongly encouraged.

Text: Linear Algebra with Applications, 5th Ed, O. Bretscher, Prentice Hall.

Author: Otto Bretscher **ISBN-13:** 9780321796974 (may copy-paste into UTA Bookstore search)

Course Objectives

At the completion of this course, students will be able to

- Speak linear algebra
- Hear linear algebra
- Observe linear algebra
- Write linear algebra
- Explain linear algebra
- Read linear algebra.

The course environment should help students appreciate both the “systems view” and “vector spaces and transformations view” (see Andrews Larson, 2015). Functional outcomes include exhibition of the following: solving systems of linear equations without the aid of a calculator and interpreting the results geometrically; giving the geometric meaning of linear transformations and expressing them in different coordinate systems; calculating the kernel, range, determinant, eigenvectors and eigenvalues of a linear map; identifying a basis of a vector space; and solving problems involving orthogonal projection and orthonormal bases.

Grade Distribution

Homework (plenty)	0%
Quiz (1)	0%
Exams (3)	17/21/26%
Final (1)	36%

Letter Grade Distribution

A	weighted average ≥ 90
B	80 - 89
C	70 - 79
D	60 - 69
F	$59 \geq$ weighted average

Coursework & Attendance

Homework

Homework problems are listed on the last page of the Syllabus and in a document found on Canvas. Homework is not a graded assignment, yet graded portions of the class (e.g. Exams) may feature questions and/or concepts emphasized in the problem sets.

Quiz

Administration of the Quiz serves to assist in understanding both content and testing procedure. The class will discuss results and analyze questions, solutions, and answers before Exam I.

Exams

Students have through 06 September 2019 to email the instructor about any possible conflicts with the given exam schedule:

Exam I	September 25	75 minutes
Exam II	October 21	75 minutes
Exam III	November 13	75 minutes

There are no make-up Exams.

The instructor will decide how to proceed if an excused absence must coincide with an Exam date. See “Attendance”.

Neither calculators of any sort nor other electronic devices are permitted on any of the assessments—Exams and Final. Simply, **no calculators**. You will be asked to present your UTA MavID at all Exams. Please bring your UTA MavID to all Exams!

Exams are weighted using the percentages found in the (sub)section “Grade Distribution”. The numerical grades for the Exams will receive a weight according to (individual) student performance with the highest scoring Exam receiving the highest weight and the lowest scoring Exam receiving the lowest weight.

Final

The Final Exam (Final) is not optional. The University provides the schedule for final exams, which students should check early and often for possible conflicts. You will be asked to present your UTA MavID. Please bring your UTA MavID to the Final!

The Final Exam is comprehensive. If you have a nonzero score on each Exam (I, II, and III) and if the numerical grade on your Final Exam is higher than your lowest numerical Exam grade, then your lowest numerical Exam grade will be replaced by the numerical grade from the Final Exam. Any student who does not earn a nonzero score on the Final Exam for this class will not pass this class.

Attendance

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students academic performance, which includes establishing course-specific policies on attendance. **As the instructor of this section, I will not record attendance.** However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course”. UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients

Presence in class is more than encouraged. Absence from class, should it occur, does not relieve students from responsibilities or consequences. Moreover, absences of different types may result in varying outcomes, including zero-grades on assignments, alternative assignments, or scaled grades on future/similar assignments. The instructor will determine which absences are excused or not while regarding University policy and determine consequences relating to grading and assignment status.

Students are responsible for obtaining/understanding all missed content, notes, etc.

UT Arlington Policies

Drop Policy

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student’s responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships.

Disability Accommodations

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by

contacting: The Office for Students with Disabilities (**OSD**) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at the OSD website.

Non-Discrimination Policy

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit Equal Opportunity Services.

Title IX Policy

The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit the Title IX website or contact Ms. Michelle Willbanks, Title IX Coordinator at 817-272-4585 or titleix@uta.edu.*

Academic Integrity

Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlingtons tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents Rule* 50101, §2.2, suspected violations of university standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the students suspension or expulsion from the University. Additional information is available at Student Conduct. Faculty are encouraged to discuss plagiarism and share the following library tutorials Copyright & Fair Use: Plagiarism and Acknowledging Sources.

Electronic Communication

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at OIT: Student MavMail.

To email the instructor, send messages to dwight.williams@uta.edu. Include a subject line

beginning with “MATH 3330-003” and containing a relevant statement/question/comment. The instructor attempts to reply to emails before the conclusion of two subsequent class meetings—replies may be in-person or included in a message to a subset of the class if appropriate and sensible.

Campus Carry

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit News Center: Campus Carry.

Final Review Week

Final Review Week for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Student Feedback Survey

At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture”, “seminar”, or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Student anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit Student Feedback Survey.

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by UTA Police regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit Crime Prevention: Active Shooter.

Counseling and Psychological Services (CAPS)

CAPS is available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives. Visit Counseling and Psychological Services or call 817-272-3671.

Student Success Programs

UT Arlington provides a variety of resources and programs designed to help students develop aca-

ademic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops. For additional information, please email resources@uta.edu or view the Maverick Resources website.

Student Resources

LRC & Math Clinic

The Math Learning Resource Center (LRC) provides multiple resources and aides. Please visit their website for schedules, tutoring information, and even employment opportunities. The LRC also houses the Math Clinic as a tutoring resource available to students currently enrolled in undergraduate mathematics classes at UT Arlington (MATH 0300-3345). From the Math Clinic page: *The tutors at the UTA Math Clinic are all undergraduate students at UTA with excellent mathematical experience and knowledge. As in life, we all have our own areas of expertise, but we are all generally proficient in all of the subjects we tutor. We are not all Math majors; some of us are Engineering majors, and we are ready to help you learn math! Come see us!*

During Fall 2019, *Vrunda Shah* is the specialized tutor willing and able to assist students of MATH 3330-003. Her *office hours* are below and contact information will be posted on Canvas.

Requires Update	M	T	W	R	F
Study Session		2:00pm–3:30pm			
Tutoring		2:00pm–6:00pm		12:30pm–2:00pm	2:00pm–5:00pm

IDEAS Center

The IDEAS Center (2nd Floor of Central Library) offers FREE tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans, and others undergoing a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call 817-272-6593.

The English Writing Center (411LIBR)

The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at the Writing Center. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see Writing Center: OWL for detailed information on all our programs and services.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation.

Librarian to Contact Each academic unit has access to Librarians by Academic Subject that can assist students with research projects, tutorials on plagiarism and citation references as well as support with databases and course reserves.

Library Resources

Library Home Page	http://library.uta.edu
Academic Plaza Consultation Services	http://library.uta.edu/academic-plaza
Subject Guides	http://libguides.uta.edu
Subject Librarians	http://library.uta.edu/subject-librarians
Database List	http://libguides.uta.edu/az.php
Course Reserves	http://pulse.uta.edu/vwebv/enterCourseReserve.do
Library Tutorials	http://library.uta.edu/how-to
Connecting to the library from Off-Campus	http://libguides.uta.edu/offcampus
Ask a librarian	http://ask.uta.edu
FabLab	http://fablab.uta.edu
Study Room Reservations	http://openroom.uta.edu
Scholarly Communications	http://library.uta.edu/scholcomm

Safety

Emergency Exit Procedures

Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit, which is located, from the perspective of individuals seated at the tables, to the right (cardinal direction East) of the classroom. When exiting the building during an emergency, do not take an elevator but use the stairwells instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities. Note: The evacuation plan for the classroom is included via hyperlink: click “PKH 319” at the top of the page. There are alternative exits if the nearest exit is inaccessible.

Emergency Phone Numbers

In case of an on-campus emergency, call UT Arlington Police: **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. For a *non-emergency*: 817-272-3381.

Syllabus Amendments

The instructor (Dwight A. Williams II) reserves the right to make changes to the Syllabus, including the Calendar and dates of Exams, when unforeseen circumstances occur or to the discerned benefit of the class membership (students and instructor). These changes will be announced as early as possible so that students can adjust their personal schedules.

Tentative Course Outline

The penultimate page of the Syllabus contains a tentative schedule (Calendar) for lectures and content tracking. The daily coverage may change as it depends on the progress of the class. The last page features problem sets (Homework) from the text. Recommendation: Seek understanding along with completion—*SHOWER*, thus, explain how and why you are working each problem.

MONDAY		WEDNESDAY		
26-Aug	1.1 & Field Axioms	28-Aug	1.2	Week 2
02-Sep	Labor Day Holiday	04-Sep	1.3 & Problem Solving Seminar	Week 3
		06-Sep		
09-Sep	2.1 with 4.1-4.2	11-Sep	2.2 with 4.1-4.2	Week 4
16-Sep	2.3 with 4.3	18-Sep	Quiz & Functions	Week 5
23-Sep	3.1	25-Sep	Exam I	Week 6
30-Sep	Chapter 3	02-Oct	Chapter 3	Week 7
07-Oct	Chapter 3	09-Oct	Chapter 4 Revisited	Week 8
14-Oct	Chapter 4 Revisited	16-Oct	Chapter 4 Revisited	Week 9
21-Oct	Exam II	23-Oct	7.1 & Special Matrices	Week 10
28-Oct	7.2 & Determinants	30-Oct	7.3 & Determinants	Week 11
		1-Nov		
04-Nov	Chapter 6	06-Nov	Chapter 6	Week 12
11-Nov	Chapter 6	13-Nov	Exam III	Week 13
18-Nov	Chapter 7 Revisited	20-Nov	Chapter 7 Revisited	Week 14
25-Nov	Linear Algebra & Calculus	Thanksgiving Holiday Nov 27 – 29, 2018		Week 15
02-Dec	5.1	04-Dec	5.2	Week 16
09-Dec	Final Exam: 2:00 - 4:30pm			Finals

Finals Week: Dec 5 – 11, 2019

Drop Deadline (submissions by 4:00pm)

Census Date

Grades due: 18 Decemeber 2019

Grades official 19 Decemeber 2019

Homework (by section)

- (1.1): 2, 10-13, 16, 17, 19, 22, 26, 33, 46
- (1.2): 1-4, 6, 8, 18, 26, 31, 43, 48, 63
- (1.3): 1-7, 9-16, 28, 34, 39, 43, 58
- (2.1): 1-6, 8, 10, 12, 14, 36, 57
- (2.2): 1, 2, 4, 8, 10, 11, 30
- (2.3): 1-5, 8, 10, 12, 22, 26, 32, 35
- (2.4): 1, 2, 5, 6, 10, 16, 17, 25, 27, 28, 30
- (3.1): 1-8, 12, 14, 16, 17, 19, 22, 30, 34
- (3.2): 1-3, 8, 12, 14, 15, 21, 24, 28, 31, 43
- (3.3): 10, 12, 16, 17, 20, 22, 23, 28, 29
- (3.4): 3, 7, 12, 16, 17, 19, 21, 27, 43, 44
- (4.1): 1-4, 7, 8, 20-22, 25, 30, 33
- (4.2): 1, 3, 7, 18, 19, 23
- (4.3): 15, 23, 25, 32, 48
- (5.1): 1-3, 10, 15, 16, 29
- (5.2): 1, 5, 7, 33, 35
- (6.1): 1, 2, 5, 6, 9, 10, 12, 14, 19, 25, 29, 32, 34, 45
- (6.2): 1, 5, 6, 11-16, 17, 38, 40
- (7.1): 1-4, 13, 34, 46
- (7.2): 9-12, 15, 29
- (7.3): 5, 6, 9, 10, 13, 15, 17, 35
- (7.4): 5, 39, 40, 48